

REMARKS

This Preliminary Amendment is submitted in connection with the above-identified continuation application. Please amend the continuation application in accordance with this Preliminary Amendment prior to any other actions on the merits.

In the parent case, claims 1, 4-10, 13-17 and 20-25 were pending. Claims 21-25 were allowed and claims 1, 4-10, 13-17 and 20 were rejected. Applicants cancelled claims 1, 4-10, 13-17 and 20 in the parent application without prejudice, while claims 21-25 were allowed to issue. In the present application, Applicants have submitted claims 1, 7-9, 13-14, 17 and 20 which correspond to claims 1, 7-9, 13-14, 17 and 20 of the parent application prior to the issuance of the Notice of Allowance.

In the parent case, claims 1, 4-10, 13, 14 and 17 stood rejected under 35 U.S.C. §103(a) as being unpatentable over *Pitts*, U.S. Patent No. 6,292,422 (*Pitts*) in view of *Gelsomini et al*, U.S. Patent No. 6,611,040 (*Gelsomini*). Applicants respectfully believe that the prior art is not combinable as suggested and submit that the pending claims are allowable.

It is respectfully submitted that Office Action in the parent case (the *prior Office Action*) does not provide any motivation to combine *Pitts* and *Gelsomini*. The mere fact that the references may be combined does not render the resultant combination obvious unless the prior art also suggests the desirability of such combination. Thus, one cannot merely provide a statement of operability, but must explain why a person of ordinary skill would be motivated to combine the references.

Generally, the "motivation to combine or modify" references includes identifying some missing element or function that calls out for such combination or modification. Otherwise it is difficult to set forth a convincing rationale for a person of ordinary skill to be motivated to make the combination or modification, and it would appear that the claims merely are being used as a template.

Specifically, the *prior Office Action* provided that, "it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use, in the method of *Pitts*, the thin oxide gated anti-fuses (or "fuses") of *Gelsomini*, having an oxide that is less than about 2.5nm, for the purposes of finding an optimum oxide thickness for reducing the operating voltages, thus reducing the power consumption and

increasing the operating speed, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.” (*prior Office Action*, page 3, lines 14-19). This argument presumes there is motivation to substitute the thin-gated anti-fuses of *Gelsomini* into the method of *Pitts*, prior to finding such optimum value for the thickness of the oxide. However, the *prior Office Action* does not identify any motivation (a missing element or function for example) for substituting the thin-gated anti-fuses of *Gelsomini* into the method of *Pitts*. Therefore Applicants submit that the proposed combination is not suggested by the references, and it appears that the claims are being used as a template for such combination.

Furthermore, the *prior Office Action* provides that *Pitts* does not disclose at least the “steps of determining, by sensing the state of the second fuse, if the state of the second fuse is equal to a second expected state, generating a second signal, and outputting a valid signal if both the first and second generated signals are high.” (*prior Office Action*, page 3, lines 8-10). However, the *prior Office Action* subsequently provides that “in view of *Pitts*’ disclosure of programming a second fuse, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the method of *Pitts* by duplicating the means of verifying the first fuse state for the second fuse, such that it will include the steps of determining if the state of the second fuse is equal to a second expected state (programmed or blown state) by sensing the state of the second fuse, generating a second signal, and outputting a valid signal if both the first and second generated signals are high, since such duplication would involve only routine skill in the art.” (*prior Office Action*, page 3, lines 21-22 and page 4, lines 1-5)

Applicants submit that *Pitts* does not specifically disclose a second fuse nor does it teach determining if the state of the second fuse is equal to a second expected state by sensing the state of the second fuse, generating a second signal, and outputting a valid signal if both the first and second generated signals are high as provide in the *prior Office Action*. Rather, *Pitts* discloses “[a]n alternative embodiment of the fuse or protection cells includes two or more fuses per cell enabled, the programming of which would be controlled by additional control signals. The additional fuses would be used as redundant elements if the fabrication or fuse programming process yield is

inadequate for production.” (*Pitts*, Col. 8, lines 61-66) Applicants believe that *Pitts* discloses storing data values by implementation of an electrical fuse, where additional fuses may be used as redundant elements if the fabrication process is inadequate. *Pitts*, alone or in combination with *Gelsomini*, does not disclose:

“determining the state of the element includes determining a state of first and second thin oxide gated fuses” as recited by claim 7, among other features;

“determining if the state of both first and second thin oxide gated fuses is equal to a first and second expected states” as recited by claim 8, among other features;

“comparing a state of a first thin oxide gated fuse having an oxide that is less than 2.5 nm thick to a first expected state, and generating a first signal; comparing a state of a second thin oxide gated fuse having an oxide that is less than 2.5nm thick to a second expected state, and generating a second signal; and outputting a valid signal if both said first and second signals are the same” as recited by claim 9 among other features;

“outputting a valid signal if both said first and second signals are high” as recited by claim 10, among other features; “determining if said state of said first thin oxide gated fuse is equal to said first expected state” as recited by claim 13, among other features;

“determining if said state of said second thin oxide gated fuse is equal to said second expected state” as recited by claim 14, among other features; and

“setting a first expected state; sensing a state of a first thin oxide gated fuse having an oxide that is less than 2.5nm thick; determining if said state of said first thin oxide gated fuse is equal to said first expected state and generating a first signal; setting a second expected state; sensing a state of a second thin oxide gated fuse having an oxide that is less than 2.5nm thick; determining if said state of said second thin oxide gated fuse is equal to said second expected state and generating a second signal; and generating a valid output if both said first and second signals are the same” as recited by claim 17, among other features.

In the *prior Office Action*, claims 15 and 16 stood rejected under 35 U.S.C. §103(a) as being unpatentable over *Pitts*, in view of *Gelsomini* and further in view of *Giolma*, U.S. Patent No. 5,384,746 (*Giolma*). Claims 15 and 16 depend, directly or

indirectly, from amended independent claim 9, reciting additional features thereto and are believed allowable at least for all the reasons provided above. Furthermore, Applicants submit the proposed combination is not suggested by any of the references, nor does *Giolma* overcome any of the limitations discussed above with respect to *Pitts* and *Gelsomini*.

In the *prior Office Action*, claim 20 stood rejected under 35 U.S.C. §103(a) as being unpatentable over *Pitts*, in view of *Gelsomini* and further in view of *Khoury*, U.S. Pat. Appl. Pub. No. 2003/0011379 (*Khoury*). Applicants respectfully believe that the prior art is not combinable as suggested and submit that pending claim 20 is allowable.

It is respectfully submitted that Office Action in the parent case (the *prior Office Action*) does not provide any motivation to combine *Pitts* and *Gelsomini*, alone or in combination with *Khoury*, as provided previously. Specifically, the *prior Office Action* provided that, "it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use, in the method of *Pitts*, the thin oxide gated anti-fuses (or "fuses") of *Gelsomini*, having an oxide that is less than about 2.5nm, for the purposes of finding an optimum oxide thickness for reducing the operating voltages, thus reducing the power consumption and increasing the operating speed, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art." (*prior Office Action*, page 5, lines 11-16). However, this argument again assumes there is motivation to substitute the thin-gated anti-fuses of *Gelsomini* into the method of *Pitts*, prior to finding such an optimum value. The *prior Office Action* does not identify any such motivation and Applicants submit that the proposed combination is not suggested by any of the references.

Furthermore, the *prior Office Action* provides that "in view of *Pitts*' disclosure of programming more than one fuse per cell (column 8, line 61 through column 9, line 3), it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the verify circuit and the logic and gate of *Pitts* by including at least one exclusive nor gate in order to generate a valid signal appropriate for a multi-fuse memory cell (see column 8, line 61 through column 9, line 3), since exclusive nor gates were common and well known in the art, and the use of exclusive

nor gates to generate an appropriate signal would involve only routine skill in the art.”
(prior Office Action, page 6, lines 1-7).

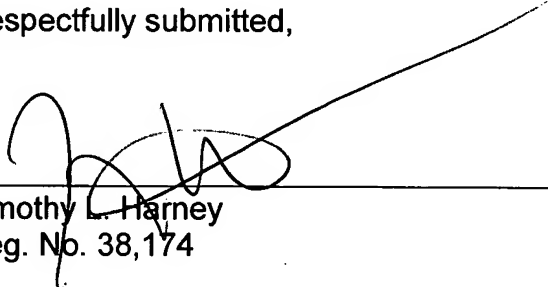
Applicants submit that *Pitts* does not specifically disclose more than one fuse per cell. Rather, *Pitts* discloses redundant elements as provided previously. Furthermore, *Pitts*, alone or in combination with *Gelsomini* and/or *Khoury*, does not disclose “at least one memory cell having at least one thin oxide gated fuse having an oxide that is less than 2.5nm thick” in combination with “at least one verify circuit connected to said memory cell and said reference cell sensing a state of said at least one thin oxide gated fuse; determining the state of the element includes determining a state of first and second thin oxide gated fuses” as recited by claim 20, among other features.

It is respectfully submitted that the pending claims define allowable subject matter.

Please charge any required fees not paid herewith or credit any overpayment to the Deposit Account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017. In view of the foregoing, it is respectfully submitted that the pending claims define allowable subject matter. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the telephone number listed below.

Dated: January 14, 2004

Respectfully submitted,



Timothy L. Harney
Reg. No. 38,174

McAndrews, Held & Malloy, Ltd.
500 West Madison Street
34th Floor
Chicago, IL 60661
Telephone: (312) 775-8000
Facsimile: (312) 775-8100